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ABSTRACT

The results of research designed to measure black residential segregation outside the central cities (i.e., the suburbs) of ten areas of Michigan are reported. The census data suggest that while substantial migration of blacks into the suburbs occurred in several areas of Michigan during the 1960's, the suburban black population numbers remained proportionally small. Only in suburban Ann Arbor was the black proportion greater than four percent. The evidence suggests that, regardless of the small size of the black population, suburban Michigan is characterized by a high degree of black residential segregation in all but one area under examination. From 1960 to 1970, six of the areas experienced an increase in segregation. Among the reasons for the increase are central city function and differential black-white suburban migration. For example, four of the five suburban areas that increased in segregation from 1960 to 1970 surround manufacturing central cities. This trend may suggest that suburbs tend to follow a pattern of residential segregation similar to that of other central cities. (Author/DE)

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THE RESIDENTIAL SEGREGATION OF BLACKS IN THE SUBURBS: THE MICHIGAN EXAMPLE

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The Residential Segregation of Blacks in the Suburbs: The Michigan Example

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ABSTRACT: The measurement of the residential segregation of blacks outside the central cities of ten Standard Metropolitan Statistical Areas (SMSA's) of Michigan reveals that a high level of segregation exists in all but one area. From 1960 to 1970, six of the areas experienced an increase in segregation. It is suggested that central city function and/or differential black-white suburban migration are important variables.

ABSTRACT. The measurement of the residential segregation of blacks outside the central cities of ten Standard Metropolitan Statistical Areas (SMSA's) of Michigan reveals that a high level of segregation exists in all but one area. From 1960 to 1970, six of the areas experienced an increase in segregation. It is suggested that central city function and/or differential black-white suburban migration are important variables.

The magnitude of black residential segregation will become an increasing concern of elected political officials as the constitutional necessity for school bussing continues to dramatize the interdependency existing between black residential segregation and racial separation in public schools. Past studies have focused primarily on black residential segregation in central cities (Darden, 1973; Taeuber and Taeuber, 1965; Poston and Passel, 1972). Few studies have examined the residential segregation of blacks in the suburbs (i.e. the area outside central cities). Nevertheless, the evidence from such studies seems to suggest that (1) while the numbers remain proportionally small, more blacks are moving to the suburbs and (2) the ghettoizing of blacks in the suburbs is occurring (Blumberg and Lalli, 1966; Connally, 1973; Rose, 1972). However, such studies did not use a measure of black residential segregation which may be applied uniformly to various suburban areas and at different time periods. Such a measure is necessary before trends in black residential segregation in the suburbs can be assessed for comparative purposes.

The purpose of this paper is to use such a measure in examining black residential segregation outside the central cities of ten areas of Michigan. This is a preliminary investigation and part of a larger study on Black Residential Segregation in Metropolitan Areas of Michigan.

THE MEASUREMENT OF BLACK RESIDENTIAL SEGREGATION

Before presenting the method of measurement, it is necessary to define the concept. Residential segregation is defined as the overall unevenness in the spatial distribution of blacks and whites throughout the area outside the central city (i.e. the suburbs). The measure employed is an index of segregation which can be stated as follows:

$$S = 1/2 \Sigma |x_i - y_i|$$

where x_i = the percentage of the suburbs' black population living in a given census tract;

y_i = the percentage of the suburbs' white population living in the same census tract;

S = the index of segregation, or one-half the sum of the differences (positive and negative) between the percentage spatial distributions of the blacks and whites in the suburb, i.e., the area outside the central city.

The index may range from "0" indicating no segregation on the basis of race to "100" indicating total segregation. Whatever the value of the index, it reflects the minimum percentage of either race, that would have to move from census tracts in which they are overrepresented to census tracts in which they are underrepresented. The measure used is not influenced by the percentage of blacks in the suburban population. Thus, it is capable of mathematically reflecting a high degree of segregation even though the area in which it is being applied has a low percentage of blacks in its population (Poston and Passel, 1972, p. 1).

TECHNICAL LIMITATIONS OF THE METHOD OF MEASURING SEGREGATION

Nevertheless, the index does have some technical limitations that merit discussion. It should be noted that the index is sensitive to the size of the spatial units used. The smaller the subareas, the greater the degree of identifiable residential segregation, and the larger the values that will be obtained on any given index (Taeuber and Taeuber, 1965, p. 229). For example, let us assume that a segregation index value based on census tracts is 50.0. A segregation index value based on wards would not be greater than 50.0, and would probably be less. On the other hand, a segregation index value based on blocks would not be less than 50.0 and would probably be greater (Darden, 1973, p. 5). Although city blocks are the smallest readily identifiable spatial units for which data can be obtained, they have their limitations.

Presently block based data do not allow comparisons of segregation levels among central cities, suburbs and entire standard Metropolitan Statistical areas. In other words, the choice of spatial unit to measure segregation must be a function of the problem under investigation and of data availability; there is no such thing as "the best spatial unit". For this study, which involved a comparison of segregation in central cities, suburbs and SMSA's, census tracts were more appropriate than either wards or blocks. Their major limitation was that the degree and magnitude of segregation by block could not be determined. The segregation index used in this study takes into account only differences in the percentage of the two racial groups in each census tract within the suburban area and reveals nothing about intratract spatial distributions. Thus it is possible that in a tract classified as nonsegregated, with equal percentages of the suburban area's

black and white populations, there could still be total segregation by block (Darden, 1973, p. 5).

It should also be noted that the index value may be influenced by boundary changes such as annexations. Although there were annexations in eight of the areas in the study from 1960 to 1970, the population of the annexed areas was small e.g. 17 people in Kalamazoo. Previous studies have indicated that where the annexed population is small, the effect on the index value is negligible (Taeuber, 1965, p. 239). Thus no adjustments were made in this study for boundary revisions, and tracts annexed during the decade.

The data for this study were obtained from United States Census Tract Statistics (U. S. Bureau of the Census, 1972). Segregation scores were computed at the tract level for the following ten areas outside the central cities of Ann Arbor, Bay City, Detroit, Flint, Grand Rapids, Jackson, Kalamazoo, Lansing, Muskegon and Saginaw. Before analyzing the segregation scores, the migration of blacks into the suburbs will be discussed.

BLACK MIGRATION INTO THE SUBURBS, 1960-1970

The census data indicate that from 1960 to 1970, in those central cities with a substantial number of blacks, there was a high percentage of black migration outside such central cities (Table 1). In fact, the components of population change in the suburbs due to migration was higher for the black population than for the white population. Outside three central cities (Flint, Grand Rapids and Saginaw) the black population more than doubled. The area that experienced the greatest percentage of black migration during the decade was suburban Flint. The area that experienced the least percentage of black migration was suburban Detroit. Such differences

TABLE 1. BLACK AND WHITE MIGRATION INTO SELECTED SUBURBAN AREAS OF MICHIGAN, 1960-1970

Suburban Area	Black Net Migration[a] Number	Percent	Percent Diff.	White Net Migration Number	Percent
Ann Arbor	4,573	34.9	18.1	26,824	16.8
Detroit	10,826[b]	14.8	8.1	107,991[b]	6.7
Flint	3,622[c]	166.3	146.5	34,636[c]	19.8
Grand Rapids	731[d]	131.0	-	-58	-
Saginaw	2,118	91.2	74.0	15,548	17.2

Source: U.S. Bureau of the Census. 1970 Census of Population and Housing: General Demographic Trends for Metropolitan Areas, 1960-1970, Final Report, PHC (2)-24, 1971.

[a] Includes other races.

[b] Includes Oakland and Wayne Counties only.

[c] Includes Genesee County only.

[d] Includes Kent County only.

can be explained in part by the pattern of ghetto expansion, i.e., black expansion into suburbia during the sixties was attributable to the physical expansion of central city ghettos into contiguous areas (Connally, 1973, 97). As the ghetto expanded in Flint, it reached (in some areas) the municipal boundary of the central city (Darden, 1975). Since no physical barriers to expansion existed, the black population of Flint continued to spread, crossing into the suburban area. Whereas in Detroit, during the sixties, black expansion, (with few exceptions) failed to reach the suburban boundary. Thus, little migration of blacks into the suburbs occurred.

While the data suggest that substantial migration of blacks into the suburbs occurred in several areas of Michigan during the sixties, the suburban black population numbers remained proportionally small (Table 2). Only in suburban Ann Arbor was the black proportion greater than four percent. Most of the suburban areas had less than 5,000 blacks. Only suburban Detroit, Ann Arbor and Flint exceeded this number.

THE MAGNITUDE OF BLACK RESIDENTIAL SEGREGATION IN SUBURBAN MICHIGAN, 1960-1970

Indexes of residential segregation for ten suburban areas of Michigan are presented in Table 3. If one were to define a "high" level of residential segregation as one above 50 percent, then all but one suburban area would be considered highly segregated. The lone exception is suburban Kalamazoo. The indexes above 50 percent imply that a majority of the population of either race, black or white, would have to change its place of residence to make the areas non-segregated. Thus, the evidence suggests that regardless of the small size of the black population, suburban Michigan is characterized by a high degree of black residential segregation. The segregation values range from a high of 92.2 percent in suburban Detroit to a low of 42.8 percent in suburban Kalamazoo.

TABLE 2. POPULATION AND PERCENT DISTRIBUTION IN SUBURBAN AREAS OF MICHIGAN BY RACE, 1960-1970

Suburban Area	Population 1970	Population 1960	Percent Distribution 1970	Percent Distribution 1960
Ann Arbor				
White	122,570	96,358	91.2	91.7
Black	11,139	8,597	8.3	8.2
Other races	660	145	0.5	0.1
Bay City				
White	67,638	53,346	99.6	99.8
Black	50	16	0.1	0.1
Other races	202	76	0.3	0.1
Detroit				
White	2,580,843	2,012,402	96.0	96.2
Black	96,655	76,647	3.6	3.7
Other races	10,951	3,167	0.4	0.1
Flint				
White	295,989	216,605	97.6	98.8
Black	6,440	2,501	2.1	1.1
Other Races	912	193	0.3	0.1

Grand Rapids				
White	339,273	283,662	99.3	99.7
Black	1,133	581	0.3	0.2
Other races	1,170	350	0.3	0.1
Jackson				
White	95,011	78,525	97.2	96.6
Black	2,547	2,694	2.6	3.3
Other races	232	55	0.2	0.1
Kalamazoo				
White	114,461	87,047	98.7	99.3
Black	1,045	479	0.9	0.5
Other races	489	97	0.4	0.2
Lansing				
White	242,790	189,700	98.3	99.2
Black	2,465	836	1.0	0.4
Other races	1,622	606	0.7	0.4
Muskegon-Muskegon Heights				
White	93,752	82,220	98.2	98.0
Black	1,303	1,450	1.4	1.7
Other races	436	236	0.5	0.3

Saginaw				
White	122,749	90,165	96.0	97.5
Black	4,568	2,227	3.6	2.4
Other races	577	95	0.5	0.1

Source: U.S. Department of Commerce, Bureau of the Census, 1970 Census of Population and Housing: General Demographic Trends for Metropolitan Areas, 1960 to 1970, Final Report, PHC (2)-24, 1971.

TABLE 3. INDEXES OF BLACK RESIDENTIAL SEGREGATION OUTSIDE TEN CENTRAL CITIES OF MICHIGAN

Suburban Area	1970	1960	Percentage Point Change
Detroit	92.2	89.8	+ 2.4
Muskegon	87.7	82.2	+ 5.5
Flint	82.8	72.9	+ 9.9
Jackson	81.0	87.4	- 6.4
Saginaw	79.7	73.7	+ 6.0
Ann Arbor	58.3	77.1	-18.8
Lansing	58.2	55.2	+ 3.0
Bay City	56.0	*	*
Grand Rapids	51.6	59.8	- 8.2
Kalamazoo	42.8	44.0	- 1.2
Mean	69.0	71.3	- 2.3

Source: Calculated by the author from data found in U.S. Bureau of the Census. U.S. Census of Population and Housing: 1970 Census Tracts, Final Report PHC (1)-11, 21, 58, 70, 80, 93, 98, 106, 138, 179.

*Data not available by tract in 1960.

It is also important to note that while blacks in the suburbs of Michigan on the average, have a higher socio-economic status level than blacks in Michigan's central cities, the two groups are equally as segregated. The mean level of segregation in the suburbs of Michigan in 1970 was 69.0 percent and 69.3 percent in the central cities (Table 4). The highest mean level of segregation is found in the total SMSA with 76.9 percent in 1970 (Table 5). There is reason to believe that the same mechanism which causes racial residential segregation in central cities is operating in the suburbs and throughout the SMSA. The policy implications of such mechanism will be discussed later.

The reason for the wide variation in levels of segregation cannot be readily explained. It is not due to variations in city size or variations in percentage black. It may, however, be somewhat related to variations in central city function; however more research is needed. For example, four of the suburbs with segregation levels above the mean, namely Detroit, Flint, Muskegon and Saginaw are suburbs surrounding manufacturing central cities. On the other hand, of the five suburbs with segregation levels below the mean, four (Kalamazoo, Lansing, Grand Rapids and Bay City) are suburbs surrounding diversified central cities and one, Ann Arbor, functions as an area of professional service (Nelson, 1955). While the sample of suburbs in this study may be too small to make reliable conclusions, the findings do suggest that more research on the influence of city function on residential segregation should be undertaken.

Table 4. INDEXES OF BLACK RESIDENTIAL SEGREGATION IN TEN CENTRAL CITIES OF MICHIGAN

Central City	1970	1960	Percentage Point Change
Grand Rapids	80.0	81.5	-1.5
Saginaw	78.4	78.8	-0.4
Detroit	78.2	80.4	-2.2
Flint	77.7	82.9	-5.2
Kalamazoo	72.9	70.6	+2.3
Muskegon	70.8	64.5	+6.3
Bay City	67.8	*	*
Jackson	67.1	65.0	+2.1
Lansing	59.2	78.7	-19.5
Ann Arbor	41.1	62.8	-21.7
Mean	69.3	73.9	-4.6

Source: Calculated by the author from data found in U.S. Bureau of the Census. U.S. Census of Population and Housing: 1970 Census Tracts, Final Report PHC (17-11, 21, 58, 70, 80, 93, 98, 106, 138, 179.

*Data not available by tract in 1960.

TABLE 5. INDEXES OF BLACK RESIDENTIAL SEGREGATION IN TEN SMSA's OF MICHIGAN

SMSA	1970	1960	Percentage Point Change
Detroit	88.9	87.1	+1.8
Flint	86.4	83.0	+3.4
Grand Rapids	84.6	83.9	+1.3
Saginaw	83.7	81.6	+2.1
Jackson	80.9	80.2	+0.7
Muskegon	80.5	74.5	+6.0
Bay City	76.4	*	*
Kalamazoo	71.3	76.2	-5.1
Lansing	64.8	83.3	-18.5
Ann Arbor	51.9	72.6	-20.7
Mean	76.9	80.3	-3.4

Source: Calculated by the author from data found in U.S. Bureau of the Census. U.S. Census of Population and Housing: 1970 Census Tracts, Final Report PHC (1)-11, 21, 58, 70, 80, 93, 98, 106, 138, 179.

*Data not available by tract in 1960.

TRENDS IN SUBURBAN RESIDENTIAL SEGREGATION

Having examined the magnitude of black residential segregation in suburban areas of Michigan for 1970, a discussion of the trends in segregation since 1960 seems appropriate. The trends did not follow a consistent pattern. In five suburban areas (Detroit, Muskegon, Flint, Saginaw and Lansing), there were increases in black residential segregation. Flint experienced the greatest increase (9.9 percentage points). On the other hand, four areas (Jackson, Ann Arbor, Grand Rapids and Kalamazoo) experienced a decrease in black residential segregation. The greatest decrease occurred in Ann Arbor (18.8 percentage points).

The reasons for such trends in suburban segregation are difficult to assess. Obviously a multiplicity of factors are involved. Among them are probably central city function and black-white differences in suburban migration. For example, four of the five suburban areas (Detroit, Muskegon, Flint, Saginaw) that increased in segregation from 1960 to 1970 surround manufacturing central cities. This trend may suggest that suburbs tend to follow a similar pattern of residential segregation as their central cities. However, more research is needed on this point. Also among the suburbs surrounding manufacturing cities, the larger the differential in black-white suburban net migration, the larger the increase in suburban residential segregation over the decade. Flint, with the largest increase in suburban residential segregation had the largest black-white net migration differential (146.5 percent). Flint is followed by Saginaw (74.0 percent) and Detroit (8.1 percent). (Table 1)

Three of the four suburbs (Kalamazoo, Grand Rapids, Jackson) that experienced a decrease in segregation surround diversified central cities.

The suburban area (Ann Arbor) that experienced the greatest decline is a professional service area.

It appears then, that variation in trends in black residential segregation is related to variations in city function and black-white differentials in net suburban migration. However, such an interpretation must be made with caution due to the small sample size. Nevertheless such findings suggest that variations in city functions and black-white differentials in net suburban migration should be considered in future studies of suburban residential segregation.

Finally, although the mean level of black residential segregation declined in the central cities, SMSA's and suburbs of Michigan from 1960 to 1970, the suburbs experienced the smallest mean percentage point decrease. Thus if the present trends continue, by 1980, Michigan's suburbs will be more segregated than Michigan's central cities. Therefore, while small in size, the residential patterns for the evolution of massive suburban black ghettos similar to those in central cities have been established albeit the pattern is not irreversible.

THEORETICAL AND POLICY IMPLICATIONS

Preliminary investigation has indicated that from 1960 to 1970, black migration to the suburbs of Michigan substantially increased. However, the proportion of the suburban population that was black remained small. In spite of such small population size, blacks were very unevenly distributed, resulting in high levels of residential segregation. Furthermore, while the residential segregation of blacks in suburbs surrounding diversified and professional service cities decreased, the suburbs surrounding manufacturing cities increased. Thus, these findings support previous studies that the

"ghettoizing of blacks in the suburbs is occurring." However, the cause of black residential segregation in Michigan's suburbs is multifarious and requires further study. Although the major cause of black residential segregation in central cities, namely discrimination in housing, was not the focus of this study, the findings seem to suggest that some variation in levels of black residential segregation may occur independent of, or in relation to discrimination in housing. Among the factors influencing such variation in levels of black residential segregation may be city function and differential black-white net suburban migration. For example, it may be, that there is less resistance to the enforcement of anti-discrimination in housing policies in suburbs surrounding diversified or professional service cities vis-a-vis suburbs surrounding manufacturing cities.

Nevertheless, once the primary cause of black residential segregation in the suburbs has been determined, any policy for reducing it must be metropolitan in scope. The fact that black residential segregation may be decreasing in one part of the SMSA while increasing in another is evidence of the necessity of a comprehensive policy to deal with the problem. Without such metropolitan comprehensive policy, black residential segregation will probably continue to increase in those areas of the SMSA where such policies are weak or non-existent, although it may decline in those areas where the policies are strong.

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